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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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08/834,798 04/03/97 PEDERSEN

D 20879-0009

EXAMINER

MM92/0515

TRIAL & TECHNOLOGY LAW GROUP
545 MIDDLEFIELD ROAD SUITE 220
MENLO PARK CA 94025

VIGUSHIN, J

ART UNIT

PAPER NUMBER

2835
DATE MAILED:

19
05/15/00

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Notice of Allowability

Application No.
08/834,798

Applicant(s)
Pedersen et al.

Examiner
John Vigushin

Group Art Unit
2841



All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance and Issue Fee Due or other appropriate communication will be mailed in due course.

☒ This communication is responsive to Prelim. Amendment filed Mar 01, 2000.

☒ The allowed claim(s) is/are 1-18.

☐ The drawings filed on _____ are acceptable.

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been
☐ received.

☐ received in Application No. (Series Code/Serial Number) _____.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____.

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

A SHORTENED STATUTORY PERIOD FOR RESPONSE to comply with the requirements noted below is set to EXPIRE **THREE MONTHS** FROM THE "DATE MAILED" of this Office action. Failure to timely comply will result in ABANDONMENT of this application. Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

☐ Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL APPLICATION, PTO-152, which discloses that the oath or declaration is deficient. A SUBSTITUTE OATH OR DECLARATION IS REQUIRED.

☒ Applicant MUST submit NEW FORMAL DRAWINGS

☒ because the originally filed drawings were declared by applicant to be informal.

☐ including changes required by the Notice of Draftsperson's Patent Drawing Review, PTO-948, attached hereto or to Paper No. _____.

☐ including changes required by the proposed drawing correction filed on _____, which has been approved by the examiner.

☐ including changes required by the attached Examiner's Amendment/Comment.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the reverse side of the drawings. The drawings should be filed as a separate paper with a transmittal letter addressed to the Official Draftsperson.

☐ Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Any response to this letter should include, in the upper right hand corner, the APPLICATION NUMBER (SERIES CODE/SERIAL NUMBER). If applicant has received a Notice of Allowance and Issue Fee Due, the ISSUE BATCH NUMBER and DATE of the NOTICE OF ALLOWANCE should also be included.

Attachment(s)

☐ Notice of References Cited, PTO-892

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

☐ Interview Summary, PTO-413

☒ Examiner's Amendment/Comment

☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material

☒ Examiner's Statement of Reasons for Allowance

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5-15-00
Rohrbaugh

Application/Control Number: 08/834,798

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DETAILED ACTION

Continued Prosecution Application

1. The request filed on May 03, 1999 for a Continued Prosecution Application (CPA) under 37 CFR 1.53(d) based on parent Application No. 08/834,798 is acceptable and a CPA has been established. An action on the CPA follows.

The present Office Action is responsive to the above-cited CPA request and the Applicant's Preliminary Amendment (Paper No. 18.5) filed March 6, 2000 (Certificate of Mailing date: March 01, 2000).

On March 14, 2000, the Examiner mailed a First Action Final Office Action (Paper No. 18) responsive only to the above-cited CPA request because, at the time of the Office Action, the above-cited Preliminary Amendment was not yet matched with the instant Application file.

Since said Preliminary Amendment was matched with the file *after* the Examiner's March 14th Final Action was already mailed, *the finality of said March 14 Office Action is hereby withdrawn* and an Office Action responsive to the above-cited Preliminary Amendment follows hereinbelow.

Examiner's Amendment

2. The following amendment corrects a minor grammatical informality and thereby places the Application in condition for allowance:

In Claim ~~9~~, line 2, "is" has been deleted.

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Allowable Subject Matter

3. Claims 1-18 have been allowed.

4. The following is an examiner's statement of reasons for allowance:

As to product Claims 1-7, 16-18, method Claims 8-13 and independent product Claims 14 and 15, patentability resides, at least in part, in the combination of *the second insulation layer deposited over the claimed metal layer, and the second plurality of holes in the second insulation layer exposing selected portions of said metal layer to form external connection points such that said metal layer routes respective bond pads to corresponding external connection points*, in further combination with the other limitations of base Claims 1 and 8, and independent Claims 14 and 15, respectively.

5. The reasons for allowance stated above flow from the following analysis of the pertinent prior art of record:

Scholz (US 5,329,423) does not teach or suggest that the first and second insulation layers (18 and 20, respectively, in Fig. 1; 72 and 70, respectively, in Fig. 3) and the metal layer (22 in Fig. 1; 66 in Fig. 3) are configured such that the metal layer routes respective bond pads of the chip to corresponding external connection points. *The metal layer is not configured with routing lines or traces*; in fact, Scholz teaches away from such a *routing* configuration (col.3: 56-62).

Yasunaga et al. (US 5,656,863) teaches a chip 3 with a first insulation layer 11 and a metal layer 61 thereon, said metal layer 61 configured to route the chip I/O bond pads 4, disposed on a central portion of the chip, to a peripheral portion of the chip for external connections by means

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of routing traces 61 (Fig. 70; col.29: 60-col.30: 13). Yasunaga et al. also teaches a chip encapsulated by a resin 1 with beveled edges, one of which edges is mechanically connected to a circuit board by an insulative adhesive 70 so that the chip is mounted sideways on the board. Yasunaga et al. does not teach or suggest the Applicant's claimed second insulation layer; instead, Yasunaga et al. teaches the entire chip being encapsulated by molding resin 1 with only the electrodes 60 partially protruded for external connection; hence, there is no motivation for applying an additional insulation layer (that of Scholz or the Applicant) with exposure holes over the metal layer of Yasunaga et al.

Therefore, the Examiner finds no motivation in either of the two above-cited references for combining the disclosures to meet the Applicant's independent claims.

6. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

7. Claims 1, 2, 4, 3, 5-7, 16-18 and 8-15 of the instant allowed Application will be renumbered as Claims 1-18, respectively, for publication in the issued patent.

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Response to Arguments

8. The Applicant argues that the contact bumps 58, 60 of Scholz are not the electrically conductive epoxy contemplated by the Applicant and therefore patentably distinguish over the conductive epoxy conductive contact bumps of Scholz. The Examiner respectfully disagrees.

The Examiner notes that the Applicant's *contemplated* (i.e., disclosed) electrically conductive epoxy may be of a different form or state in application than the form or state of the conductive epoxy contact bumps 24, 26, 58, 60 of Scholz. However, the Applicant's *claimed* "electrically conductive epoxy" is in no way limited in any of the Applicant's claims to a particular form, state or consistency that distinguishes over Scholz. Accordingly, the ***broadly claimed recitation*** of an "electrically conductive epoxy" connection in the Applicant's claims is met by the electrically conductive epoxy connection taught by Scholz in the contact bumps 24, 26 (Fig. 1) and 58, 60 (Fig. 3) as discussed in col.3: 63-68. Therefore, the Examiner takes the position that the "electrically conductive epoxy" applied between semiconductor chip terminals and the substrate terminals in Claims 1, 8, 14 and 15 is not the feature that patentably distinguishes the above-cited independent claims over Scholz.

9. The fact that Scholz neither teaches nor suggests the Applicant's claimed "face-up" chip package assembly, as argued by the Applicant, was never in dispute.

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Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to John Vigushin whose telephone number is (703) 308-1205. The examiner can normally be reached on Monday to Friday from 8:30AM to 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffrey Gaffin, can be reached on (703) 308-3301. The fax phone number for the organization where this application or proceeding is assigned is (703) 308-7382.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

John B. Vigushin
Assistant Examiner
May 09, 2000


Jeffrey Gaffin
Supervisory Patent Examiner
Technology Center 2800



UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office

NOTICE OF ALLOWANCE AND ISSUE FEE DUE

MM92/0515

TRIAL & TECHNOLOGY LAW GROUP
545 MIDDLEFIELD ROAD SUITE 220
MENLO PARK CA 94025

APPLICATION NO.	FILING DATE	TOTAL CLAIMS	EXAMINER AND GROUP ART UNIT	DATE MAILED
08/834,798	04/03/97	018	VIGUSHIN, J 2835	05/15/00
First Named Applicant PEDERSEN,	35 USC 154(b) term ext. = 0 Days.			

TITLE OF INVENTION CONDUCTIVE EPOXY FLIP-CHIP PACKAGE AND METHOD

ATTY'S DOCKET NO.	CLASS-SUBCLASS	BATCH NO.	APPLN. TYPE	SMALL ENTITY	FEE DUE	DATE DUE
3 20879-0009	361-779.000	M45	UTILITY	YES	\$605.00	08/15/00

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED.

THE ISSUE FEE MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED.

HOW TO RESPOND TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.
If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

- A. If the status is changed, pay twice the amount of the FEE DUE shown above and notify the Patent and Trademark Office of the change in status, or
- B. If the status is the same, pay the FEE DUE shown above.

If the SMALL ENTITY is shown as NO:

- A. Pay FEE DUE shown above, or
- B. File verified statement of Small Entity Status before, or with, payment of 1/2 the FEE DUE shown above.

II. Part B-Issue Fee Transmittal should be completed and returned to the Patent and Trademark Office (PTO) with your ISSUE FEE. Even if the ISSUE FEE has already been paid by charge to deposit account, Part B Issue Fee Transmittal should be completed and returned. If you are charging the ISSUE FEE to your deposit account, section "4b" of Part B-Issue Fee Transmittal should be completed and an extra copy of the form should be submitted.

III. All communications regarding this application must give application number and batch number.
Please direct all communications prior to issuance to Box ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

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